

October 25, 2001

10 CFR 50.73

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

LaSalle County Station, Unit 2  
Facility Operating License No. NPF-18  
NRC Docket No. 50-374

Subject: Licensee Event Report

In accordance with 10 CFR 50.73(a)(2)(iv)(A), Exelon Generation Company, (EGC), LLC, is submitting Licensee Event Report Number 01-003-00, Docket No. 050-374.

Should you have any questions concerning this letter, please contact Mr. William Riffer, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,



Mark A. Schiavoni  
Plant Manager  
LaSalle County Station

Attachments: Licensee Event Report

cc: Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - LaSalle County Station

IE22

## LICENSEE EVENT REPORT (LER)

(See reverse for required number of  
digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to: bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the

## 1. FACILITY NAME,

LaSalle County Station, Unit 2

## 2. DOCKET NUMBER

05000 374

## 3. PAGE

1 OF 3

## 4. TITLE

Reactor Scram Due to Undervoltage Protective Circuit Actuation on Division 1 ESF Bus

## 5. EVENT DATE

MO	DAY	YEAR
09	03	2001

## 6. LER NUMBER

YEAR	SEQUENTIAL NUMBER	REV NO
2001	03	00

## 7. REPORT DATE

MO	DAY	YEAR
10	25	2001

## 8. OTHER FACILITIES INVOLVED

FACILITY NAME	DOCKET NUMBER

9. OPERATING  
MODE

1

10. POWER  
LEVEL

100

## 11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	X 50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	Specify in Abstract below or in
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	NRC Form 366A
20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

## 12. LICENSEE CONTACT FOR THIS LER

## NAME

David Czufin

## TELEPHONE NUMBER (Include Area Code)

815-415-2278

## 13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU- FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU- FACTURER	REPORTABLE TO EPIX
B	EB	FU	Bussman	N					

## 14. SUPPLEMENTAL REPORT EXPECTED

YES (If yes, complete EXPECTED SUBMISSION DATE) X NO

15. EXPECTED  
SUBMISSION  
DATE

MONTH DAY YEAR

## 16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On September 3, 2001, Unit 2 ESF Bus 241Y lost power due to actuation of the Division 1 undervoltage (UV) protective circuit. This caused the feedwater level control circuits to lose power. At 1728 hours, the operators inserted a manual scram because reactor water level could not be controlled.

Following the scram, reactor level continued to decrease until High Pressure Core Spray and Reactor Core Isolation Cooling automatically initiated and injected to restore level. All systems operated as designed. Safety relief valves were manually actuated to control reactor water level. All control rods fully inserted.

The root cause of this event was that fuses failed in the potential transformer portion of the Division 1 UV protective circuit.

This scram was inserted due to loss of feedwater flow at 100% power. This transient is bounded by loss of feedwater event with a single failure. The loss of a single ESF bus caused the loss of some ESF systems. The redundant systems were available and operated as necessary to remove decay heat and control reactor vessel level and pressure.

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
LaSalle County Station, Unit 2	05000374	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
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PLANT AND SYSTEM Identification

General Electric - Boiling Water Reactor, 3489 Megawatts Thermal Rated Core Power

A. CONDITION PRIOR TO EVENT

Unit(s): 2                      Event Date: 09/03/01                      Event Time: 1728  
Reactor Mode(s): 1              Power Level(s): 100  
Mode(s) Name: Run

B. DESCRIPTION OF EVENT

On September 3, 2001, Unit 2 ESF Bus 241Y lost power due to actuation of the Division 1 undervoltage (UV) [EB] protective circuit. The feed breaker to the bus opened due to the Bus UV load shedding logic. On loss of power to ESF Bus 241Y, the feedwater level control [JB] circuits lost power. The loss of control power drove the feedwater demand to zero and prevented the operators from taking control of the components. The loss of power caused the "A" Reactor Protection System (RPS) [JE] bus to trip. This results in half of the scram logic being made up and various Primary Containment [JM] logic being initiated.

At 1728 hours the operators inserted a manual scram when it became apparent that reactor water level could not be controlled in the normal range with feedwater. All control rods fully inserted. Following the scram, reactor water level continued to decrease to minus 50 inches. High Pressure Core Spray (HPCS) [BJ] and Reactor Core Isolation Cooling (RCIC) [BN] automatically initiated and injected to restore level. The Anticipated Transient Without a Scram logic tripped both Reactor Recirculation pumps off. The Alternate Rod Injection logic also initiated.

The UV logic started the unit common diesel generator (EDG) [EK] and energized Bus 241Y once it was up to speed. However, the UV signal was still in and prevented the bus loads from being re-energized (i.e. 2A RHR, LPCS and AC power crosstie to Unit 1 for Division 1). The redundant systems (i.e. RHR Loops B and C, RCIC, HPCS and Low Pressure Coolant Injection) were available and operated as necessary to remove decay heat and control reactor vessel water level and pressure.

All systems operated as designed. The lowest reactor water level reached was minus 55 inches. Operators closed the Main Steam Isolation Valves as level continued to increase above procedural limits. Safety relief valves were manually actuated in accordance with procedure to control reactor water level and remove decay heat.

This event is reportable pursuant to 10CFR50.73(a)(2)(iv)(A) as an event that resulted in manual actuation of the reactor protection system. An Emergency Notification System call was made at 2102 hours on September 3, 2001.

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**C. CAUSE OF EVENT**

The root cause of this event was failed fuses in the potential transformer portion of the Division 1 UV protective circuit. This UV protection circuit tripped power to the reactor water level control system, driving the demand signal to zero and preventing operator intervention from controlling level. In the event of a single potential transformer fuse failure, UV protection would not initiate. There are two B phase fuses in parallel, and one fuse each in phases A and C. The failure of both B phase fuses or the failure of both A and C phase fuses will initiate UV protection on bus 241Y. A fuse failure in phase A or C will actuate one channel of UV and degraded voltage relays, and voltage indication in the Main Control Room will not show full voltage on all three phases. The failure of a single B phase fuse will not be detected in the control room or locally at the switchgear. This design deficiency contributed to the event.

**D. SAFETY ANALYSIS**

This scram was due to loss of feedwater flow at 100% power. This transient is bounded by loss of feedwater event with a single failure. The loss of a single ESF bus caused the failure of some ESF systems (i.e. 2A RHR, LPCS and AC power crosstie to Unit 1 for Division 1) to respond to the event. The redundant systems were available and operated as necessary to remove decay heat and control reactor vessel level and pressure. HPCS injection and RCIC injection were valid responses to low RPV level due to loss of feedwater and loss of AC power. RPV level was restored as expected. RPV pressure was maintained within expected values using RCIC and SRVs. Decay heat was removed using redundant 2B RHR in suppression pool cooling. Suppression pool temperature was maintained within procedural limits.

High RPV level was mitigated per procedure by closing the MSIVs. This caused the loss of the condenser as a heat sink. However SRVs and RHR 2B were able to remove the decay heat and control reactor vessel water level. This method is the safety related (UFSAR evaluated) method of responding to this event.

**E. CORRECTIVE ACTIONS**

Corrective actions include replacing all four Bussmann JCW-1E fuses with GE type EJI fuses which have been found to be more robust.

To minimize the possibility of losing the bus, a modification will install a new PT drawer that will allow a single 'B' phase fuse failure to be detected in the control room (low voltage reading) and locally at the switchgear (UV and degraded voltage relay flags). (ATM # 75014)

**F. PREVIOUS OCCURRENCES**

A review of Licensee Event Reports over the previous five years found no previous or similar occurrences.

**G. COMPONENT FAILURE DATA**

Bussmann, 1 amp, JCW-1E fuses